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JAPANESE

[JP,09-312649,A]

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CLAIMS DETAILED DESCRIPTION TECHNICAL FIELD PRIOR ART EFFECT OF THE  
INVENTION TECHNICAL PROBLEM MEANS DESCRIPTION OF DRAWINGS DRAWINGS

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[Translation done.]

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**CLAIMS**

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**[Claim(s)]**

[Claim 1] The migration terminal communication controller of each base station which controls two or more migration terminals and these migration terminals, It is the transmission-speed automatic change approach in the migration communication system which consists of a host switch which supervises a migration terminal communication controller. With a migration terminal communication controller the value which measured the communication link transmission quality between all the migration terminals and base stations in the area in its duty in order, and the measured migration terminal — present — with the 1st step which boils the transmission speed of business serially and notifies it to a host switch, and a host switch A suitable transmission speed corresponding to the migration terminal concerned is judged from the measured value of the communication link transmission quality notified from the migration terminal communication controller at said 1st step. the judged transmission speed — the migration terminal concerned — present, when it differs from the transmission speed of business the migration terminal control unit concerned — present — with the 2nd step which notifies the transmission-speed change to the transmission speed judged from the transmission speed of business, and a migration terminal communication controller the notice of the transmission-speed change received from the host switch at said 2nd step — following — the migration terminal concerned — present — the transmission-speed automatic change approach which serves as more the 3rd step changed from the transmission speed of business to the transmission speed which the host switch judged.

[Claim 2] The measured value of said communication link quality is the transmission-speed automatic change approach according to claim 1 which is the bit error rate of a transmission signal.

[Claim 3] the time of said host switch \*\*\*\*ing within the limits of the upper limit and lower limit which have registered the upper limit and lower limit of a communication link transmission-quality value into the interior, and the measured value of the communication link transmission quality notified from the migration terminal communication controller has registered — present — the transmission-speed automatic change approach according to claim 1 or 2 judged as the transmission speed of business being suitable.

[Claim 4] the time of said host switch being less than the lower limit which the measured value of the communication link transmission quality notified from the migration terminal communication controller has registered — a migration terminal communication controller — present — the transmission-speed automatic change approach according to claim 3 of performing the notice of a transmission-speed change which changes the transmission speed of business to a high speed more. [Claim 5] the time of said host switch exceeding the upper limit which the measured value of the communication link transmission quality notified from the migration terminal communication controller has registered — a migration terminal communication controller — present — the transmission-speed automatic change approach according to claim 3 or 4 of performing the notice of a transmission-speed change which changes the transmission speed of business to a low speed more.

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]****[0001]**

**[Field of the Invention]** This invention relates to the transmission-speed automatic change control approach in the migration communication system which consists of a migration terminal communication controller which controls two or more migration terminals and these migration terminals, and a host switch which supervises them.

**[0002]**

**[Description of the Prior Art]** a former and migration terminal — setting — transmission speed — present — when trouble was caused to a communication link remarkably [ when changing from the transmission speed of business to other transmission speed ], transmission speed was changed to low by an operator's manual operation and the communication link became good, the approach of performing the change which returns transmission speed to the higher one by an operator's manual operation again was taken.

**[0003]**

**[Problem(s) to be Solved by the Invention]** After causing trouble to the communication link, since transmission speed was changed for the first time, the transmission-speed change approach for the conventional migration terminal mentioned above had the fault that communication link quality was uniformly unmaintainable in order not to change transmission speed only by communication link quality deteriorating.

**[0004]** The purpose of this invention aims at offering the transmission-speed automatic change approach of a migration terminal of always maintaining the fixed transmission quality by choosing automatically a suitable transmission speed for a communication link condition corresponding to fluctuation of communication link quality, and changing to this transmission speed.

**[0005]**

**[Means for Solving the Problem]** The transmission-speed automatic change approach of this invention with a migration terminal communication controller the value which measured the communication link transmission quality between all the migration terminals and base stations in the area in its duty in order, and the measured migration terminal — present, while boiling the transmission speed of business serially and notifying it to a host switch the notice of the transmission-speed change received from the host switch — following — the migration terminal concerned — present — with the means changed from the transmission speed of business to the transmission speed which the host switch judged, and a host switch A suitable transmission speed corresponding to the migration terminal concerned is judged from the measured value of the communication link transmission quality notified from the migration terminal communication controller. the judged transmission speed — the migration terminal concerned — present — the time of differing from the transmission speed of business — the migration terminal control unit concerned — present — it has a means to notify the transmission-speed change to the transmission speed judged from the transmission speed of business.

**[0006]** the time of \*\*\*\*ing within the limits of the upper limit and lower limit which the bit error rate of a transmission signal was used, the judgment actuation by the host switch has registered the upper limit and lower limit of a communication link transmission-quality value into the interior

as measured value of the communication link transmission quality in this invention, and the measured value of the communication link transmission quality notified from the migration terminal communication controller has registered — present — it judges with the transmission speed of business being suitable. the time of a host switch being less than the lower limit which the measured value of the communication link transmission quality notified from the migration terminal communication controller has registered further — a migration terminal communication controller — present — the time of performing the notice of a transmission-speed change which changes the transmission speed of business to a high speed more, and exceeding an upper limit — a migration terminal communication controller — present — it is supposed that the notice of a transmission-speed change which changes the transmission speed of business to a low speed more is performed.

[0007]

[Embodiment of the Invention] Next, the gestalt of operation of this invention is explained with reference to a drawing.

[0008] Drawing 1 is the outline block diagram of the migration communication system which uses 1 operation gestalt of the transmission-speed change approach of the migration terminal of this invention.

[0009] The migration communication system of drawing 1 consists of a migration terminal 51 which performs a radio traffic between a host switch 1, two or more base stations (un-illustrating) distributed for every area of a system, and each base station thru/or 5M (M is a positive integer).

[0010] the value which measured in order the communication link transmission quality (bit error rate on a transmission line) between all the migration terminal and each base station that the base station was boiled, respectively, and is equipped with the migration terminal communication controller 31 thru/or 3Ns (N is a positive integer), and each migration terminal communication controller has in each area in its duty, and the migration terminal concerned — present — the transmission speed of business is notified to a host switch 1 through the signal bus 2. moreover, the host switch 1 — the migration terminal communication controller 31 thru/or 3Ns — respectively — since — a suitable transmission speed corresponding to the migration terminal concerned was deduced by the notice of communication link quality, and this transmission speed was notified — present — if it differs from the transmission speed of business, the transmission-speed change to the transmission speed deduced to the migration terminal communication controller concerned through the signal bus 2 will be notified.

[0011] Moreover, in response to the notice of a transmission-speed change from the host switch 1 described below, transmission speed is changed by the wireless system transmission-speed transfer device 41 corresponding to the migration terminal concerned thru/or 4M (M is a positive integer).

[0012] a host switch 1 — the migration terminal communication controller 31 thru/or 3Ns — respectively — since — a suitable transmission speed corresponding to the migration terminal concerned was deduced by the notice of communication link quality, and this transmission speed was notified — present — if it differs from the transmission speed of business, the transmission-speed change to the transmission speed deduced to the migration terminal communication controller concerned through the signal bus 2 will be notified.

[0013] Drawing 2 shows the notice format of communication link quality notified to a host switch 1 from the migration terminal communication controller 31 mentioned above thru/or 3Ns, and the measured value of the communication link transmission quality of the migration terminal concerned is written for the working transmission speed of the measured migration terminal in the communication link transmission-quality area 22 in the working transmission-speed area 21 again, respectively.

[0014] Drawing 3 shows the notice format of a transmission-speed change notified to each migration terminal communication controller 31 thru/or 3Ns from a host switch 1, and the transmission speed which the working transmission speed of the migration terminal concerned deduced to the working transmission-speed area 31, and the host switch 1 deduced to the change transmission-speed area 32 is written in, respectively.

[0015] Drawing 4 shows a format of the transmission-speed judging memory which a host switch 1 has inside, and the bound community value (the bit error rate on a transmission line shows) of the communication link quality measured value corresponding to each transmission speed of 64kbps, 16kbps, and 8kbps(es) changes it to low, changes it to the communication link quality area 43 and quantity, and it is registered in the communication link quality area 42, respectively.

[0016] Next, judgment actuation of the transmission speed by the host switch 1 in this operation gestalt is explained about the case of one migration terminal communication controller 31 using the flow chart of drawing 5.

[0017] The working transmission speed of the working transmission-speed area 21 of the notice of communication link quality which the host switch 1 reset the transmission-speed judging memory index value with initiation of operation (step S1), next was received from the migration terminal communication controller 31 is investigated, and it investigates whether it is in agreement with the transmission speed of the transmission-speed area 41 in the memory which a transmission-speed judging memory index shows (step S2). Actuation is repeated until it adds an index value (step S3) and both transmission speed is in agreement as compared with the transmission speed of the transmission-speed area 41 of the following column, if inharmonious.

[0018] If both transmission speed is in agreement, it will change to the quantity the notified working transmission speed was indicated to be to the column concerned, and will investigate whether it is below the value of the communication link quality area 42 (step S4). For example, when working transmission speed is 16kbps(es), an index value is 1, and transmission-speed 64kbps is taken out from the transmission-speed area 41 of the column of transmission-speed judging memory where it subtracts an index value, sets to 0 (step S5), and corresponds if a communication link transmission-quality value is less than 10 (i.e., if nearby is better than this threshold value as for the communication link transmission quality) (step S8). Or if with [ in step S4 / a communication link transmission-quality value ] ten [ or more ] a communication link transmission-quality value is further changed to low [ of this column ] and it has not exceeded the registration value 70 as compared with the value of the communication link transmission-quality area 43 (step S6), it progresses to step S8 and working transmission-speed 16kbps is taken out. Transmission-speed 8kbps is taken out from the transmission-speed area 41 of the column of the transmission-speed judging memory which only 1 adds an index value (step S7), and corresponds if 70 or more, i.e., the communication link transmission quality, have a communication link transmission-quality value worse than this threshold value at step S6 (step S8), and judgment actuation is finished.

[0019] Finally, when it differs from the working transmission speed it was notified that the taken-out transmission speed was, a host switch 1 sets up the transmission speed taken out to the change transmission-speed area 32, and performs the notice of a transmission-speed change to the migration terminal communication controller 31 through the signal bus 2. If both transmission speed is the same, the notice of a transmission-speed change will not be performed.

[0020] The migration terminal communications control 31 is changed to the transmission speed which the notice of a transmission-speed change was received [ transmission speed ] from the host switch 1, and had the transmission speed of the migration terminal concerned specified using one corresponding wireless system transmission-speed transfer device 41 thru/or 4M.

[0021] When the whole of each migration terminal control unit carries out processing explained above, it can be chosen and each migration terminal 51 thru/or the transmission speed in 5M can be used so that the value of the communication link transmission quality may be settled in always suitable threshold value.

[0022]

[Effect of the Invention] As explained above, the migration terminal communication controller of each base station this invention Always, By measuring the communication link transmission quality between migration terminals, notifying to a host switch, selecting a suitable transmission speed so that a host switch may be settled within the limits of predetermined in the communication link transmission quality in response, and notifying to a migration terminal communication controller It changes to the transmission speed which the host switch specified by the migration terminal communication controller side automatically, and there is effectiveness

it is ineffective to it being possible to maintain the communication link transmission quality of the migration terminal concerned in the suitable fixed range.

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**TECHNICAL FIELD**

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[Field of the Invention] This invention relates to the transmission-speed automatic change control approach in the migration communication system which consists of a migration terminal communication controller which controls two or more migration terminals and these migration terminals, and a host switch which supervises them.

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**PRIOR ART**

[Description of the Prior Art] a former and migration terminal — setting — transmission speed — present — when trouble was caused to a communication link remarkably [ when changing from the transmission speed of business to other transmission speed ], transmission speed was changed to low by an operator's manual operation and the communication link became good, the approach of performing the change which returns transmission speed to the higher one by an operator's manual operation again was taken.

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] As explained above, the migration terminal communication controller of each base station this invention Always, By measuring the communication link transmission quality between migration terminals, notifying to a host switch, selecting a suitable transmission speed so that a host switch may be settled within the limits of predetermined in the communication link transmission quality in response, and notifying to a migration terminal communication controller It changes to the transmission speed which the host switch specified by the migration terminal communication controller side automatically, and there is effectiveness it is ineffective to it being possible to maintain the communication link transmission quality of the migration terminal concerned in the suitable fixed range.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] After causing trouble to the communication link, since transmission speed was changed for the first time, the transmission-speed change approach for the conventional migration terminal mentioned above had the fault that communication link quality was uniformly unmaintainable in order not to change transmission speed only by communication link quality deteriorating.

[0004] The purpose of this invention aims at offering the transmission-speed automatic change approach of a migration terminal of always maintaining the fixed transmission quality by choosing automatically a suitable transmission speed for a communication link condition corresponding to fluctuation of communication link quality, and changing to this transmission speed.

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**MEANS**

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[Means for Solving the Problem] The transmission-speed automatic change approach of this invention with a migration terminal communication controller the value which measured the communication link transmission quality between all the migration terminals and base stations in the area in its duty in order, and the measured migration terminal — present, while boiling the transmission speed of business serially and notifying it to a host switch the notice of the transmission-speed change received from the host switch — following — the migration terminal concerned — present — with the means changed from the transmission speed of business to the transmission speed which the host switch judged, and a host switch A suitable transmission speed corresponding to the migration terminal concerned is judged from the measured value of the communication link transmission quality notified from the migration terminal communication controller. the judged transmission speed — the migration terminal concerned — present — the time of differing from the transmission speed of business — the migration terminal control unit concerned — present — it has a means to notify the transmission-speed change to the transmission speed judged from the transmission speed of business.

[0006] the time of \*\*\*\*ing within the limits of the upper limit and lower limit which the bit error rate of a transmission signal was used, the judgment actuation by the host switch has registered the upper limit and lower limit of a communication link transmission-quality value into the interior as measured value of the communication link transmission quality in this invention, and the measured value of the communication link transmission quality notified from the migration terminal communication controller has registered — present — it judges with the transmission speed of business being suitable. the time of a host switch being less than the lower limit which the measured value of the communication link transmission quality notified from the migration terminal communication controller has registered further — a migration terminal communication controller — present — the time of performing the notice of a transmission-speed change which changes the transmission speed of business to a high speed more, and exceeding a upper limit — a migration terminal communication controller — present — it is supposed that the notice of a transmission-speed change which changes the transmission speed of business to a low speed more is performed.

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[0013] Drawing 2 shows the notice format of communication link quality notified to a host switch 1 from the migration terminal communication controller 31 mentioned above thru/or 3Ns, and the measured value of the communication link transmission quality of the migration terminal concerned is written for the working transmission speed of the measured migration terminal in the communication link transmission-quality area 22 in the working transmission-speed area 21 again, respectively.

[0014] Drawing 3 shows the notice format of a transmission-speed change notified to each migration terminal communication controller 31 thru/or 3 Ns from a host switch 1, and the transmission speed which the working transmission speed of the migration terminal concerned deduced to the working transmission-speed area 31, and the host switch 1 deduced to the change transmission-speed area 32 is written in, respectively.

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[0017] The working transmission speed of the working transmission-speed area 21 of the notice of communication link quality which the host switch 1 reset the transmission-speed judging memory index value with initiation of operation (step S1), next was received from the migration terminal communication controller 31 is investigated, and it investigates whether it is in agreement with the transmission speed of the transmission-speed area 41 in the memory which a transmission-speed judging memory index shows (step S2). Actuation is repeated until it adds an index value (step S3) and both transmission speed is in agreement as compared with the transmission speed of the transmission-speed area 41 of the following column, if inharmonious.

[0018] If both transmission speed is in agreement, it will change to the quantity the notified working transmission speed was indicated to be to the column concerned, and will investigate whether it is below the value of the communication link quality area 42 (step S4). For example, when working transmission speed is 16kbps(es), an index value is 1, and transmission-speed 64kbps is taken out from the transmission-speed area 41 of the column of transmission-speed judging memory where it subtracts an index value, sets to 0 (step S5), and corresponds if a communication link transmission-quality value is less than 10 (i.e., if nearby is better than this threshold value as for the communication link transmission quality) (step S8). Or if with [ in step

S4 / a communication link transmission-quality value ] ten [ or more ] a communication link transmission-quality value is further changed to low [ of this column ] and it has not exceeded the registration value 70 as compared with the value of the communication link transmission-quality area 43 (step S6), it progresses to step S8 and working transmission-speed 16kbps is taken out. Transmission-speed 8kbps is taken out from the transmission-speed area 41 of the column of the transmission-speed judging memory which only 1 adds an index value (step S7), and corresponds if 70 or more, i.e., the communication link transmission quality, have a communication link transmission-quality value worse than this threshold value at step S6 (step S8), and judgment actuation is finished.

[0019] Finally, when it differs from the working transmission speed it was notified that the taken-out transmission speed was, a host switch 1 sets up the transmission speed taken out to the change transmission-speed area 32, and performs the notice of a transmission-speed change to the migration terminal communication controller 31 through the signal bus 2. If both transmission speed is the same, the notice of a transmission-speed change will not be performed.

[0020] The migration terminal communications control 31 is changed to the transmission speed which the notice of a transmission-speed change was received [ transmission speed ] from the host switch 1, and had the transmission speed of the migration terminal concerned specified using one corresponding wireless system transmission-speed transfer device 41 thru/or 4M.

[0021] When the whole of each migration terminal control unit carries out processing explained above, it can be chosen and each migration terminal 51 thru/or the transmission speed in 5M can be used so that the value of the communication link transmission quality may be settled in always suitable threshold value.

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

**[Drawing 1]** It is the outline block diagram of the migration communication system using 1 operation gestalt of this invention.

**[Drawing 2]** It is the notice format of communication link quality notified to a host switch from a migration terminal control unit.

**[Drawing 3]** It is the notice format of a transmission-speed change notified to each migration terminal communication controller from a host switch.

**[Drawing 4]** A host switch is a format of the transmission-speed judging memory which it has inside.

**[Drawing 5]** It is the flow chart which shows judgment actuation of a suitable transmission speed which the host switch of drawing 1 carries out.

**[Description of Notations]**

1 Host Switch

2 Signal Bus

31-3N Migration terminal communication controller

41-4M Wireless system migration terminal transfer device

51-5M Migration terminal

21 Working Transmission-Speed Area

22 Communication Link Transmission-Quality Area

31 Working Transmission-Speed Area

32 Change Transmission-Speed Area

41 Transmission-Speed Area

42 Change to Quantity and it is Communication Link Quality Area.

43 Change to Low and it is Communication Link Quality Area.

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[Translation done.]

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H 0 4 B 7/26			H 0 4 B 7/26	C
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(71)出願人 000004237

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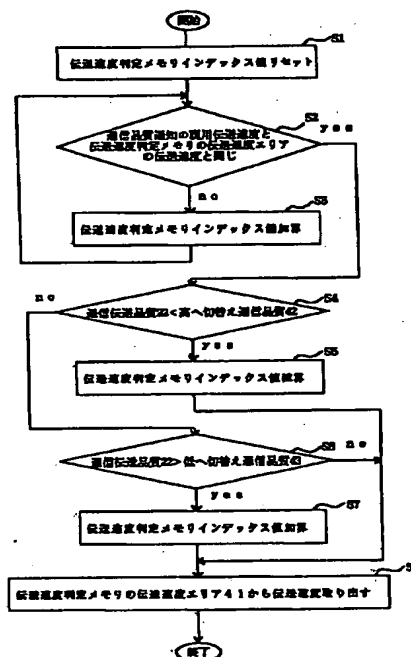
(74)代理人 弁理士 若林 忠

(54) 【発明の名称】 伝送速度自動切替え方法

(57)【要約】

【課題】 移動通信システムにおける通信伝送品質の変動に対応して、常に一定の通信伝送品質を自動的に維持する。移動端末の伝送速度自動切替え方法を提供する。

【解決手段】 移動端末通信制御装置は所定のタイミングごとに各移動端末の通信伝送品質を測定して伝送速度とともにホスト交換機へ通知する。ホスト交換機は通知された各移動端末の通信伝送品質と伝送速度を監視して、各移動端末の通信伝送品質が定めた値以上または以下になるとその情報伝送速度を確認して、低減または増加できる伝送速度であれば移動端末通信制御装置に当該移動端末の伝送速度を切替えるように要求する。移動端末制御装置はホスト交換機からの伝送速度切替え要求により該当移動端末の伝送速度を切替える。





## 【特許請求の範囲】

【請求項1】 複数の移動端末と、該移動端末を制御する各基地局の移動端末通信制御装置と、移動端末通信制御装置を監視するホスト交換機とよりなる移動通信システムにおける伝送速度自動切替え方法であって、移動端末通信制御装置により、担当エリア内にあるすべての移動端末と基地局との間の通信伝送品質を順に測定した値と、測定した移動端末の現用の伝送速度とを、逐次にホスト交換機に通知する第1のステップと、ホスト交換機により、前記第1のステップで移動端末通信制御装置より通知された通信伝送品質の測定値から当該移動端末に対応する適切な伝送速度を判定して、判定した伝送速度が当該移動端末の現用の伝送速度と異なるときは、当該移動端末通信制御装置へ現用の伝送速度から判定した伝送速度への伝送速度切替えを通知する第2のステップと、移動端末通信制御装置により、前記第2のステップでホスト交換機から受けた伝送速度切替えの通知にしたがい、当該移動端末の現用の伝送速度からホスト交換機の判定した伝送速度に切替える第3のステップと、よりなる伝送速度自動切替え方法。

【請求項2】 前記通信品質の測定値は伝送信号のビット誤り率である請求項1記載の伝送速度自動切替え方法。

【請求項3】 前記ホスト交換機は内部に通信伝送品質値の上限値と下限値とを登録しており、移動端末通信制御装置より通知された通信伝送品質の測定値が登録している上限値と下限値の範囲内に納まるときは、現用の伝送速度が適切であると判定する請求項1または2記載の伝送速度自動切替え方法。

【請求項4】 前記ホスト交換機は、移動端末通信制御装置より通知された通信伝送品質の測定値が登録している下限値を下回るときは、移動端末通信制御装置へ現用の伝送速度をより高速へ切替える伝送速度切替え通知を行う請求項3記載の伝送速度自動切替え方法。

【請求項5】 前記ホスト交換機は、移動端末通信制御装置より通知された通信伝送品質の測定値が登録している上限値を上回るときは、移動端末通信制御装置へ現用の伝送速度をより低速へ切替える伝送速度切替え通知を行う請求項3または4記載の伝送速度自動切替え方法。

## 【発明の詳細な説明】

## 【0001】

【発明の属する技術分野】 本発明は複数の移動端末およびこれらの移動端末を制御する移動端末通信制御装置とそれらを監視するホスト交換機よりなる移動通信システムにおける伝送速度自動切替え制御方法に関するものである。

## 【0002】

【従来の技術】 従来、移動端末において伝送速度を現用の伝送速度から他の伝送速度へ切替える場合は、通信に著しく支障を来した場合に取扱者の手動操作により伝送

速度を低に切替え、通信が良好になると再び取扱者の手動操作により伝送速度を高い方に戻す切替えを行う方法をとっていた。

## 【0003】

【発明が解決しようとする課題】 上述した従来の移動端末に対する伝送速度切替え方法は、通信に支障を来してから初めて伝送速度を切替えることとしているので、単に通信品質が低下しただけでは伝送速度を切替えないため通信品質を一定に維持することができないという欠点があった。

【0004】 本発明の目的は、通信品質の変動に対応して通信状態に適切な伝送速度を自動的に選択しこの伝送速度に切替えることにより、常に一定の伝送品質を維持する移動端末の伝送速度自動切替え方法を提供することを目的としている。

## 【0005】

【課題を解決するための手段】 本発明の伝送速度自動切替え方法は、移動端末通信制御装置により、担当エリア内にあるすべての移動端末と基地局との間の通信伝送品質を順に測定した値と、測定した移動端末の現用の伝送速度とを、逐次にホスト交換機に通知するとともに、ホスト交換機から受けた伝送速度切替えの通知にしたがい、当該移動端末の現用の伝送速度からホスト交換機の判定した伝送速度に切替える手段と、ホスト交換機により、移動端末通信制御装置より通知された通信伝送品質の測定値から当該移動端末に対応する適切な伝送速度を判定して、判定した伝送速度が当該移動端末の現用の伝送速度と異なるときは、当該移動端末通信制御装置へ現用の伝送速度から判定した伝送速度への伝送速度切替えを通知する手段とを有している。

【0006】 本発明における通信伝送品質の測定値としては、伝送信号のビット誤り率が用いられ、ホスト交換機による判定動作は、内部に通信伝送品質値の上限値と下限値とを登録しており、移動端末通信制御装置より通知された通信伝送品質の測定値が登録している上限値と下限値の範囲内に納まるときは、現用の伝送速度が適切であると判定する。ホスト交換機はさらに、移動端末通信制御装置より通知された通信伝送品質の測定値が登録している下限値を下回るときは、移動端末通信制御装置へ現用の伝送速度をより高速へ切替える伝送速度切替え通知を行い、また、上限値を上回るときは、移動端末通信制御装置へ現用の伝送速度をより低速へ切替える伝送速度切替え通知を行うこととしている。

## 【0007】

【発明の実施の形態】 次に本発明の実施の形態について図面を参照して説明する。

【0008】 図1は本発明の移動端末の伝送速度切替え方法の一実施形態を用いる移動通信システムの概略構成図である。

【0009】 図1の移動通信システムはホスト交換機1

とシステムの各エリア毎に分散配置された複数の基地局（不図示）と、個々の基地局との間に無線交信を行う移動端末5<sub>i</sub>ないし5<sub>j</sub>。（Mは正の整数）とよくなる。

【0010】基地局はそれぞれに移動端末通信制御装置3<sub>i</sub>ないし3<sub>j</sub>。（Nは正の整数）を備えており、個々の移動端末通信制御装置は、それぞれの担当エリア内にあるすべての移動端末と各基地局との間の通信伝送品質（伝送路上のビット誤り率）を順に測定した値と当該移動端末の現用の伝送速度とを、信号バス2を介してホスト交換機1へ通知する。また、ホスト交換機1は、移動端末通信制御装置3<sub>i</sub>ないし3<sub>j</sub>それぞれからの通信品質通知により当該移動端末に対応する適切な伝送速度を割り出して、この伝送速度が通知された現用の伝送速度と異なっていれば信号バス2を介して当該移動端末通信制御装置へ割り出した伝送速度への伝送速度切替えを通知する。

【0011】また、次に述べるホスト交換機1からの伝送速度切替え通知を受けて、当該移動端末に対応する無線系伝送速度切替え装置4<sub>i</sub>ないし4<sub>j</sub>。（Mは正の整数）により伝送速度を切替える。

【0012】ホスト交換機1は、移動端末通信制御装置3<sub>i</sub>ないし3<sub>j</sub>それぞれからの通信品質通知により当該移動端末に対応する適切な伝送速度を割り出して、この伝送速度が通知された現用の伝送速度と異なっていれば、信号バス2を介して当該移動端末通信制御装置へ割り出した伝送速度への伝送速度切替えを通知する。

【0013】図2は上述した移動端末通信制御装置3<sub>i</sub>ないし3<sub>j</sub>からホスト交換機1へ通知する通信品質通知フォーマットを示し、現用伝送速度エリア21へは測定した移動端末の現用伝送速度が、また、通信伝送品質エリア22へは当該移動端末の通信伝送品質の測定値が、それぞれ書き込まれる。

【0014】図3はホスト交換機1から各移動端末通信制御装置3<sub>i</sub>ないし3<sub>j</sub>へ通知する伝送速度切替え通知フォーマットを示し、現用伝送速度エリア31へは当該移動端末の現用伝送速度が、また、切替伝送速度エリア32へはホスト交換機1が割り出した伝送速度が、それぞれ書き込まれる。

【0015】図4はホスト交換機1が内部に有する伝送速度判定メモリのフォーマットを示し、64kbps、16kbpsおよび8kbpsの各伝送速度に対応する通信品質測定値の上下限界値（伝送路上でのビット誤り率で示す）が、低へ切替え通信品質エリア43および高へ切替え通信品質エリア42へ、それぞれ登録されている。

【0016】次に、図5のフローチャートを用いて本実施形態におけるホスト交換機1による伝送速度の判定動作を、1つの移動端末通信制御装置3<sub>i</sub>の場合について説明する。

【0017】ホスト交換機1は、動作開始とともに伝送

速度判定メモリインデックス値をリセットし（ステップS1）、次に、移動端末通信制御装置3<sub>i</sub>から受領した通信品質通知の現用伝送速度エリア21の現用伝送速度を調べ、伝送速度判定メモリインデックスの示すメモリ内の伝送速度エリア41の伝送速度と一致するかどうかを調べる（ステップS2）。不一致であればインデックス値を加算して（ステップS3）、次の欄の伝送速度エリア41の伝送速度と比較して両伝送速度が一致するまで動作を繰返す。

【0018】両伝送速度が一致すれば、通知された現用伝送速度が当該欄に示された高へ切替え通信品質エリア42の値以下であるか否かを調べる（ステップS4）。例えば現用伝送速度が16kbpsのときはインデックス値は1であり、通信伝送品質値が10を下回れば、すなわち通信伝送品質がこの限界値よりもより良好であればインデックス値を減算して0とし（ステップS5）、対応する伝送速度判定メモリ内の欄の伝送速度エリア41から伝送速度64kbpsを取り出す（ステップS8）。または、ステップS4で通信伝送品質値が10以上であればさらに通信伝送品質値を同欄の低へ切替え通信伝送品質エリア43の値と比較して（ステップS6）、登録値70を上回っていなければ、ステップS8へ進んで現用伝送速度16kbpsを取り出す。もしステップS6で通信伝送品質値が70以上、すなわち通信伝送品質がこの限界値よりも悪ければインデックス値を1だけ加算して（ステップS7）、対応する伝送速度判定メモリ内の欄の伝送速度エリア41から伝送速度8kbpsを取り出して（ステップS8）、判定動作を終る。

【0019】最後にホスト交換機1は、取り出した伝送速度が通知された現用伝送速度と異なっているとき、切替え伝送速度エリア32へ取り出した伝送速度を設定して信号バス2を介して移動端末通信制御装置3<sub>i</sub>へ伝送速度切替え通知を行う。もし、両伝送速度が同一であれば伝送速度切替え通知は行わない。

【0020】移動端末通信制御3<sub>i</sub>は伝送速度切替え通知をホスト交換機1より受領して、対応する1つの無線系伝送速度切替え装置4<sub>i</sub>ないし4<sub>j</sub>を用いて当該移動端末の伝送速度を指定された伝送速度に切替える。

【0021】以上説明した処理をそれぞれの移動端末制御装置がすべて実施することにより、各移動端末5<sub>i</sub>ないし5<sub>j</sub>における伝送速度は、その通信伝送品質の値が常に適当な限界値内に納まるように選択されて用いられることができる。

【0022】

【発明の効果】以上説明したように本発明は、各基地局の移動端末通信制御装置が常時、移動端末との間の通信伝送品質を測定してホスト交換機に通知し、ホスト交換機はこれを受けて通信伝送品質を所定の範囲内に納まるように適切な伝送速度を選定して移動端末通信制御装置に通知することにより、自動的に移動端末通信制御装置

側でホスト交換機の指定した伝送速度に切替えて、当該移動端末の通信伝送品質を適切な一定の範囲に維持することが可能となる効果がある。

【図面の簡単な説明】

【図1】本発明の一実施形態を用いる移動通信システムの概略構成図である。

【図2】移動端末制御装置からホスト交換機へ通知する通信品質通知フォーマットである。

【図3】ホスト交換機から各移動端末通信制御装置へ通知する伝送速度切替え通知フォーマットである。

【図4】ホスト交換機が内部に有する伝送速度判定メモリのフォーマットである。

【図5】図1のホスト交換機が実施する適切な伝送速度の判定動作を示すフローチャートである。

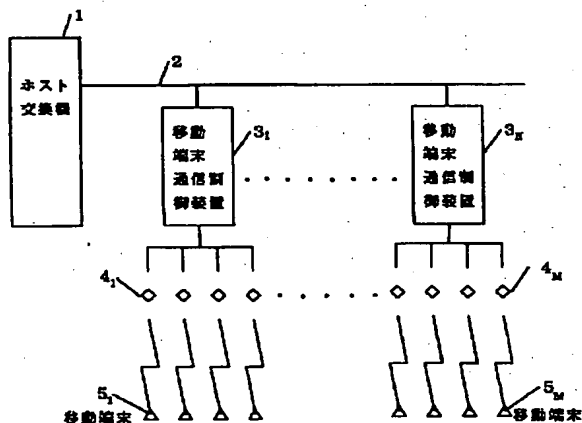
\*【符号の説明】

- 1 ホスト交換機
- 2 信号バス
- 3<sub>1</sub>～3<sub>n</sub> 移動端末通信制御装置
- 4<sub>1</sub>～4<sub>n</sub> 無線系移動端末切替え装置
- 5<sub>1</sub>～5<sub>n</sub> 移動端末
- 2 1 現用伝送速度エリア
- 2 2 通信伝送品質エリア
- 3 1 現用伝送速度エリア
- 3 2 切替伝送速度エリア
- 4 1 伝送速度エリア
- 4 2 高へ切替え通信品質エリア
- 4 3 低へ切替え通信品質エリア

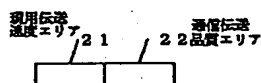
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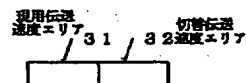
【図1】



【図2】



【図3】



【図4】

伝送速度 エリア	4 1	高へ切替え 通信品質エリア 4 2	4 3 低へ切替え 通信品質エリア
54kbps	0	70	
16kbps	10	70	
8kbps	10	100	

【図5】

